



NUCLEAR INSTALLATION LICENCE NO. NIL - 44
(Variation 0)

In terms of section 21 of the National Nuclear Regulator Act (Act No. 47 of 1999)
Nuclear Licence No. NIL- 44 is hereby granted

to

ESKOM

for

the siting, construction, operation and decommissioning of the nuclear installation known as the Original Steam Generators Interim Storage Facility (OSGISF), located on the site earmarked for the Transient Interim Storage Facility, and situated on the site of Cape Farm No. 34, also known as Duynefontein, in the magisterial district of Malmesbury in the Western Cape.

The conditions identified below or later revisions to these conditions as are approved by the National Nuclear Regulator, (hereinafter referred to as the Regulator) must be adhered to.

ISSUED at CENTURION on this 05th day of MAY 2021.

Dr. Mzubanzi Tyobeka
CHIEF EXECUTIVE OFFICER
NATIONAL NUCLEAR REGULATOR

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	2 of 17

Contents

1.0 GENERAL	3
2.0 NUCLEAR INSTALLATION DESCRIPTION	4
3.0 DEMARCATION OF SITE	5
4.0 SCOPE OF ACTIONS THAT MAY BE UNDERTAKEN	5
5.0 RADIOLOGICAL PROTECTION	6
6.0 ENVIRONMENTAL PROTECTION AND EFFLUENT MANAGEMENT	7
7.0 RADIOACTIVE WASTE MANAGEMENT	7
8.0 EMERGENCY PLANNING AND PREPAREDNESS	8
9.0 MEDICAL SURVEILLANCE AND HEALTH REGISTER	9
10.0 TRANSPORT	10
11.0 SAFETY ASSESSMENT	10
12.0 MODIFICATION TO DESIGN OF PLANT	11
13.0 DESIGN AND MANUFACTURING OF COMPONENTS	12
14.0 LIMITS AND CONDITIONS ON OPERATIONS	12
15.0 MAINTENANCE AND IN-SERVICE INSPECTION	12
16.0 AGEING MANAGEMENT AND LONG TERM OPERATION	12
17.0 DECOMMISSIONING	13
18.0 PHYSICAL SECURITY	13
19.0 DEALING WITH SITE	14
20.0 AUTHORISED AND QUALIFIED PERSONS	14
21.0 QUALITY AND SAFETY MANAGEMENT	14
22.0 DOCUMENTS AND RECORDS	15
23.0 ORGANISATIONAL CHANGES	15
24.0 SAFETY COMMITTEES	15
25.0 FINANCIAL SECURITY	16
26.0 INSPECTION PROGRAMME	16
27.0 EVENTS ON SITE	16
28.0 PUBLIC SAFETY INFORMATION FORUM	17
29.0 DISPLAY OF NUCLEAR INSTALLATION LICENCE	17

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	3 of 17

LICENCE CONDITIONS

1.0 GENERAL

- 1.1 In these conditions any reference to an agreement, approval, directive, specification, notification, process or any formal communication between the Regulator and the licensee, and vice versa, shall be deemed to be a reference to a written document.
- 1.2 In these conditions any reference to processes and or procedures shall be deemed to be licensee processes and or procedures.
- 1.3 In these conditions any reference to Regulator accepted processes and or procedures shall be deemed to be licensee processes and or procedures that have been reviewed and approved by the Regulator.
- 1.4 The licensee must ensure that once accepted no alteration or amendment is made to the Regulator accepted processes and or procedures unless the Regulator has accepted the said alteration or amendment.
- 1.5 Where in these conditions, the Regulator requires any matter to be approved or to be carried out only with its consent or to be carried out as it directs, the Regulator may:
- a) from time to time modify, revise or withdraw, either wholly or in part, any such approval, directive or consent;
 - b) approve, either wholly or in part, any modification or revision or any proposed modification or revision to any matter for the period being approved.
- 1.6 This licence is valid for the siting and construction of one building of the OSGISF unless:
- a) amended for subsequent licensing stages; or
 - b) varied, suspended or revoked.
- 1.7 A request for a change to a licence condition or to any document referred to in this Licence must be made in accordance with the requirements of LD-1079: "Requirements in Respect of Licence Change Requests to the National Nuclear Regulator".

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	4 of 17

1.8 Notwithstanding the provisions of the above conditions, the licensee must not permit any part of the plant to be modified or any procedure to be amended in any manner which would be contrary to the safety requirements of the Regulator.

1.9 All documents referred to in this licence are the versions as directed by the Regulator.

1.10 The English text of the licence is the official text of the licence.

2.0 NUCLEAR INSTALLATION DESCRIPTION

2.1. The OSGISF is located on the site earmarked for the Transient Interim Storage Facility as described in the document Design of the OSGISF, 07092 M7-A, Rev 2.

2.2. The installation comprises of two concrete mausoleum buildings known as the OSGISF.

2.3. Each building is designed for horizontal storage of three empty original steam generators from the Koeberg Nuclear Power Station, authorised under NIL-01.

2.4. The original steam generators shall be painted and with all primary and secondary openings welded closed in order to fix any loose contamination and prevent the spread of contamination.

2.5. The concrete buildings shall be constructed with wall and roof thickness of 55 cm and concrete density of 2.5 g/cm³.

2.6. The floor surface of the OSGISF will be painted with an approved de-contaminable paint.

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	5 of 17

3.0 DEMARCATION OF SITE

- 3.1 The OSGISF is located within the boundaries of the Koeberg Nuclear Power Station owner controlled area and shall form part of the existing management and control of the existing site as approved in the Duynefontein Site Safety Report.
- 3.2 The licensee must maintain a plan of the site (hereinafter called the site plan) showing the location of the boundary of the site and every building, plant or facility on the site.
- 3.3 The licensee must demarcate the boundaries of the site by fences or other appropriate means and all such fences or other means used for this purpose must be properly maintained.
- 3.4 Prior to making any change to the site, which impacts or has the potential to impact on health, safety, or the environment as contemplated in the Act, the licensee must submit to the Regulator an amended site plan and schedule, for approval.
- 3.5 The licensee must not permit any activities on site that are not directly or indirectly necessary for the operation of the nuclear installation. Any development on the site must be place bound in compliance with the Development Plan for the region.

4.0 SCOPE OF ACTIONS THAT MAY BE UNDERTAKEN

The scope of activities undertaken under the authority of this Licence must be limited to the following:

- 4.1 Siting and construction of one building of the OSGISF on the site as described in Condition 2.1 of this licence.
- 4.2 The siting and construction activities includes all site establishment and early site activities as described in the OSGISF Safety Report, document SGR/5829/2020, Rev 1, subject to Regulatory intervention points.
- 4.3 The carrying out of all civil and construction works for one building of the OSGISF subject to Regulatory intervention points.

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	6 of 17

- 4.4 Performance of commissioning and functional testing as described in the document Design of the OSGISF, 07092 M7-A, Rev 2, subject to Regulatory intervention points.
- 4.5 Movement of original steam generators into the OSGISF will be subject to regulatory approval which requires variation of this licence.
- 4.6 The construction of the second building of the OSGISF is subject to a regulatory approval which requires variation of the licence.

5.0 RADIOLOGICAL PROTECTION

- 5.1 Radiation doses to persons occupationally exposed to ionising radiation on the site, to other persons on the site and to members of the public, arising from operations at the site, discharge of effluent from the site and transport of any item or material from the site, must be in compliance with the system of dose limitation specified in RD-0022: "Radiation Dose Limitation at Koeberg Nuclear Power Station".
- 5.2 The licensee must implement processes and procedures for the purposes of ensuring radiological protection of employees, members of the public and the environment, both on the site and off the site, as a consequence of authorised actions.
- 5.3 The licensee's radiological protection processes must ensure that:
 - a) effective radiation doses, including committed effective doses, to persons;
 - b) the number of people who are exposed; and
 - c) the likelihood of incurring exposures to radiation, are kept as low as reasonably achievable.
- 5.4 The licensee must comply with the provisions specified in 36-197: "Koeberg Licensing Basis Manual" regarding the following:
 - a) Radiation protection.
 - b) Radiation protection organisation.
 - c) Operational radiation protection, artificial radioactive nuclides (other than that contained in radioactive waste and spent nuclear fuel), training and medical control of radiation workers, radiation monitoring instrumentation,

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	7 of 17

respiratory protection, optimisation of protection, radiological surveillance and radiation shield verification, together with reviews and technical audits thereof.

- d) The requirements relating to personnel dosimetry together with reviews and technical audits thereof.
- e) Control of radioactive sources.

5.5 A Radiation Dose Register of every occupationally exposed worker must be established and maintained in a form acceptable to the Regulator. The licensee must retain the register for a period of at least fifty years from the date of last entry.

5.6 Buildings located on the Koeberg Nuclear Power Station site up to 90m from the transport path must be evacuated during the transfer of the original steam generators from the Koeberg Nuclear Power station reactor buildings to the OSGISF.

5.7 A radiological survey to the closest site boundary to the OSGISF must be performed to verify compliance with the assumptions of the Safety Report prior to approval for construction of the second building.

6.0 ENVIRONMENTAL PROTECTION AND EFFLUENT MANAGEMENT

6.1 The licensee must comply with the provisions specified in 36-197: "Koeberg Licensing Basis Manual" regarding the following:

- a) Environmental monitoring programme together with reviews and technical audits thereof.
- b) Meteorological monitoring programme together with reviews and technical audits thereof.

7.0 RADIOACTIVE WASTE MANAGEMENT

7.1 The licensee must implement programmes, as applicable, for the minimisation and safe management of radioactive waste on the site.

7.2 The radioactive waste management programme must:

- a) ensure the identification, quantification, characterisation and classification of any radioactive waste generated;

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	8 of 17

- b) provide for the necessary steps leading to safe clearance, authorised discharge, disposal, reuse or recycling; and
- c) provide for the safe storage of radioactive waste between any waste management processes.

7.3 The safety of radioactive waste storage options must be assured for the envisaged period of storage.

7.4 The licensee must comply with the provisions specified in 36-197: “Koeberg Licensing Basis Manual” regarding the generation, processing and disposal of radioactive waste and reviews and technical audits thereof.

8.0 EMERGENCY PLANNING AND PREPAREDNESS

8.1 The licensee must comply with the requirements of RD-014: “Emergency Preparedness and Response Requirements for Nuclear Installations”.

8.2 The licensee must comply with the provisions specified in 36-197: “Koeberg Licensing Basis Manual” regarding the following:

- a) An emergency plan being established and maintained in a state of preparedness and being subject to reviews and technical audits.
- b) Management and mitigated measures to be taken as a result of a severe accident.
- c) Responsibilities and training of staff in severe accident management.

8.3 The licensee must implement approved processes related to preparedness for and response to any event or other emergency arising on the site and their associated impacts.

8.4 The licensee must ensure that provisions include processes and procedures to ensure that all persons, in the employ of the licensee, who have duties in connection with such processes are properly trained and instructed in:

- a) the performance of the processes;
- b) the use of any equipment that may be required; and
- c) the precautions to be observed.

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	9 of 17

8.5 Where such processes and procedures require the assistance or cooperation of, or it is expedient to make use of the services of any person, local authority or any other body; the licensee must ensure that such persons, local authority or other body are consulted in the periodic review and update of such processes.

8.6 The licensee must ensure that all such processes and procedures are exercised and tested at such intervals and at such times and to such extent as the Regulator may specify or, where the Regulator has not so specified, as the licensee considers necessary to ensure their continued viability.

9.0 MEDICAL SURVEILLANCE AND HEALTH REGISTER

9.1 The licensee must implement measures to ensure fitness for duty of all personnel, including contractors involved in activities impacting on nuclear safety and nuclear security.

9.2 The licensee must comply with the provisions and requirements relating to the medical evaluation of nuclear power plant personnel, as contained in LD-1077: "Requirements for Medical and Psychological Surveillance and Control".

9.3 A comprehensive medical surveillance programme and health register must be maintained in a form approved by the Regulator.

9.4 All entries in the health register must be made by an Appointed Medical Practitioner.

9.5 The appointed medical practitioner must inform the employee of any medical condition, which could have arisen as a result of occupational exposure to radiation.

9.6 The licensee must retain the register for a period of at least fifty years from the date of last entry.

9.7 An employee or former employee must have right of access to his medical records and health register at all times.

9.8 After consent has been obtained from the employee or former employee, as the case may be, the licensee must, on the request of the Regulator provide

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	10 of 17

access to the employee's medical records and health register. The Regulator may, with the consent of the employee or former employee, as the case may be, appoint an independent medical practitioner to assist in the conduct of a review of said records.

10.0 TRANSPORT

10.1 Transport of radioactive material or any equipment or objects contaminated with radioactive material off site must comply with the relevant provisions of the International Atomic Energy Agency Safety Standard Series, No. SSR-6 "Regulations for the Safe Transport of Radioactive Material".

10.2 All on site transport of radioactive material or any equipment or objects contaminated with radioactive material must be carried out in accordance with the provisions specified in 36-197: "Koeberg Licensing Basis Manual" regarding the on-site transport of radioactive material.

10.3 The licensee must keep a record of all radioactive material consigned to and from the site. Such record must :

- a) contain particulars of the amount, type and form of such radioactive material, the manner in which it was packaged, the name and address of the person to whom it was consigned to or from and the date when it left or arrived on the site.
- b) be preserved for a period acceptable to the Regulator.

10.4 The licensee must not undertake any transport of radioactive material to sites, installations or persons not appropriately authorised to receive such material.

11.0 SAFETY ASSESSMENT

11.1 The licensee must implement processes and procedures for the production and assessment of safety cases consisting of documentation to justify safety during the following lifecycle phases of the installation:

- a) Siting;
- b) Design;
- c) Manufacture of component parts;
- d) Construction;
- e) Commissioning;
- f) Operation;

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	11 of 17

- g) Termination of operation;
- h) Decontamination; and
- i) Decommissioning.

11.2 The Safety Assessment of the installation, which includes the probabilistic risk analysis, must be updated on a regular basis, at a frequency acceptable to the Regulator, and reflect the current status of the installation, the site and its environs.

11.3 The licensee must establish and implement processes for the periodic and systematic review and reassessment of safety cases.

11.4 The licensee must comply with the provisions specified in 36-197: "Koeberg Licensing Basis Manual" regarding the following:

- a) The safety assessment of the installation.
- b) The risk assessment and demonstration of compliance with the safety criteria of the Regulator in accordance with the requirements of RD-0024: "Requirements on Risk Assessment and Compliance with Principal Safety Criteria for Nuclear Installations".

11.5 The licensee must comply with the provisions specified in KAA-709: "Process for Performing Safety Evaluations, Screenings, and Safety Justifications".

12.0 MODIFICATION TO DESIGN OF PLANT

12.1 Modifications to the plant must be carried out in accordance with the requirements of the LD-1012: "Requirements in Respect of Proposed Modifications to the Koeberg Nuclear Power Station", augmented by the additional requirements as stipulated in Appendix A of this Licence.

12.2 The licensee must comply with the provisions specified in 36-197: "Koeberg Licensing Basis Manual" regarding the following:

- a) Control of Plant Design and Configuration
- b) Modifications made to the plant or any other change which may impact on nuclear safety.

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	12 of 17

13.0 DESIGN AND MANUFACTURING OF COMPONENTS

13.1 The design of structures, systems and components important to safety must consider the effects of ageing and wear on structures, systems and components both in the provision of design margins and the provision for monitoring, testing, sampling, and inspecting structures, systems and components to assess ageing mechanisms, verify predictions, and identify unanticipated behaviors or degradation that may occur during operation.

13.2 Design and manufacturing of components important to safety must be carried out in accordance with the requirements of RD-0034: "Quality and Safety Management Requirements for Nuclear Installations".

13.3 The licensee must comply with the provisions specified in 36-197: "Koeberg Licensing Basis Manual" regarding the design and manufacturing of components important to safety.

14.0 LIMITS AND CONDITIONS ON OPERATIONS

14.1 The licensee must ensure that periodic inspections, monitoring, dose measurements and security requirements are controlled and carried in compliance with approved procedures.

15.0 MAINTENANCE AND IN-SERVICE INSPECTION

15.1 The maintenance and in-service inspection programme of the OSGISF must be included in the inspection regime of the civil structures of Koeberg Nuclear Power Station.

15.2 Maintenance and inspection of the condition of the original steam generators shall be in accordance with an approved ageing management programme.

16.0 AGEING MANAGEMENT

16.1 The licensee must ensure that an effective ageing management programme is developed, implemented and maintained to ensure the barrier integrity of the original steam generators.

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	13 of 17

17.0 DECOMMISSIONING

17.1 The licensee must ensure that the waste disposal strategy and plan for the original steam generators have been finalised and approved by all relevant stakeholders within five years of operationalisation of the OSGISF.

17.2 The licensee must ensure that the disposal of the original steam generators are implemented as per the approved disposal plan for the OSG's, not later than ten years after operationalisation of the OSGISF.

17.3 The licensee must submit a detailed decommissioning plan for the OSGISF prior to an operating licence being granted.

17.4 The decommissioning plan must include financial assurance that adequate funding will be available for decommissioning of the facilities.

17.5 Financial assurance for decommissioning of the OSGISF shall be provided by way of either a-

17.5.1 Fund to be established that is acceptable to the Board of the Regulator; or

17.5.2 Financial guarantee issued by a duly registered bank and acceptable to the Board of the Regulator.

18.0 PHYSICAL SECURITY

18.1 The licensee must comply with the provisions specified in 36-197: "Koeberg Licensing Basis Manual" regarding physical security.

18.2 The licensee must ensure the safety and security of the:

a) site; and

b) all installations and persons thereon.

18.3 The physical protection system must be designed to protect against the design basis threat, theft or diversion of radioactive material and sabotage.

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	14 of 17

18.4 The licensee must prevent unauthorised persons from entering the site or any part thereof.

19.0 DEALING WITH SITE

19.1 The licensee must ensure that every person authorised to be on the site receives instructions (to the extent that this is necessary having regard to the circumstances of that person being on the site) with regards to the risks and hazards associated with the nuclear installations and their operation, the precautions to be observed in connection therewith and the actions to be taken in the event of an accident or emergency on the site.

19.2 The licensee must ensure that suitable and sufficient methods are employed on the site for the purposes of informing persons thereon of each of the following matters:

- a) the meaning of any warning sign used on the site;
- b) the location of any exit from any place on the site, where such exit is provided for use in the event of an emergency;
- c) the measures to be taken by such persons in the event of any emergency.

20.0 AUTHORISED AND QUALIFIED PERSONS

20.1 The licensee must comply with the provisions specified in 36-197: "Koeberg Licensing Basis Manual" that ensures that only suitably qualified and experienced persons perform any duties, which may affect the safety of operations on the site, or any duties assigned by or under these conditions of licence.

20.2 Such provisions must allow for the appointment, as appropriate, of duly authorised persons to control and supervise operations, which may affect safety.

21.0 QUALITY AND SAFETY MANAGEMENT

21.1 All activities embodied in the scope of this Licence must comply with the requirements of quality and safety management as contained in RD-0034: "Quality and Safety Management Requirements for Nuclear Installations".

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	15 of 17

22.0 DOCUMENTS AND RECORDS

22.1 The licensee must comply with the provisions specified in 36-197: “Koeberg Licensing Basis Manual” regarding the keeping of adequate records to demonstrate compliance with the conditions of this licence.

22.2 The licensee must implement and maintain an approved document management system to ensure that every document required, every record made, every authority, consent or approval granted and every directive or certificate issue in pursuance of these conditions of licence is preserved for the expected lifetime of the facility or such other period as the Regulator may approve.

23.0 ORGANISATIONAL CHANGES

23.1 The licensee must comply with the provisions specified in 36-197: “Koeberg Licensing Basis Manual” regarding the control of changes to its organisational structure or resources that may have a bearing on health, safety and the environment as contemplated in the Act.

24.0 SAFETY COMMITTEES

24.1 The licensee must comply with the provisions specified in 36-197: “Koeberg Licensing Basis Manual” regarding the establishment of safety committee(s).

24.2 The provisions must ensure that safety committee(s) oversee and manage its safety responsibilities and to which it refers for consideration and advice:

- a) matters required by or under this licence;
- b) safety policies, procedures, processes or documents required by these conditions of licence or as the Regulator may specify and any subsequent alteration or amendment to said processes or documents;
- c) any matter affecting safety on or off the site which the Regulator may specify; and
- d) any other matter, which the licensee considers should be referred to a safety committee.

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	16 of 17

24.3 The licensee must ensure that the members of any such committee are suitably qualified and experienced, so as to enable said committee to consider any matter likely to be referred to it and to advise the licensee authoritatively and, so far as practicable, independently.

24.4 The licensee must ensure that a safety committee shall consider or advise only during the course of a properly constituted meeting of that committee. Minutes must be kept of all such meetings.

25.0 FINANCIAL SECURITY

25.1 A holder of more than one nuclear installation licence relating to installations situated on a single site may provide financial security for nuclear damage at the level of the nuclear installations in the highest category. Such financial security must cover all nuclear installations on the site.

25.2 The licensee must provide proof to the Regulator of financial security provided for potential nuclear damage arising from the operation of the OSGISF prior to operation of the OSGISF.

26.0 INSPECTION PROGRAMME

26.1 Pursuant to the provisions of Section 26(2) of the Act, the licensee must implement an inspection programme to ensure compliance with all conditions of the nuclear installation licence.

27.0 EVENTS ON SITE

27.1 Occurrences as identified in LD-1000: "Notification Requirements for Occurrences Associated with Koeberg Nuclear Power Station" must be reported to the Regulator in accordance with the provisions of that document and as required by RD-0025 "Emergency Communication with the National Nuclear Regulator".

27.2 The licensee must comply with the provisions specified in 36-197: "Koeberg Licensing Basis Manual" regarding the notification, recording, investigation,

TITLE	VARIATION	PAGE
NUCLEAR INSTALLATION LICENCE NO. NIL- 44	0	17 of 17

reporting and closeout of events (incidents, accidents, etc.) occurring on the site.

28.0 PUBLIC SAFETY INFORMATION FORUM

28.1 In order to inform the persons living in the municipal area in respect of which an emergency plan has been established, in terms of Section 38(1) of the Act, on nuclear and radiation safety matters, the licensee must establish a Public Safety Information Forum as prescribed.

29.0 DISPLAY OF NUCLEAR INSTALLATION LICENCE

29.1 To ensure public access to the conditions specified in this licence, the licensee must at all times display copies of this Nuclear Installation Licence at the entrance to the installation.